Rayat Shikshan Sanstha's

Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur

(Autonomous)

First Year Syllabus of B.Sc. (As per NEP-2020)

NAAC Reaccredited 'A+' grade, CGPA: 3.51

Affiliated to the

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Program: B.Sc. I

Subject: Statistics (Skill Enhancement Courses(SEC))

Semester: I and II

Pattern: Choice Based Credit System (CBCS)

Syllabus to be implemented from June, 2023

SEC Course (NEP-2020)

Course Objectives: Students will be able to,

1. To provide knowledge of MS-Excel to the students.
2. To provide knowledge of Statistical functions in MS-Excel
3. To develop hands-on skills of students

	Data Analysis using MS-Excel -I	No. of hours	Credit
Semester -I	1.1. Create Worksheets and Workbooks, Create a workbook, Import data from a delimited text file, Add a worksheet to an existing workbook, Copy and move a worksheet 1.2. Navigate in Worksheets and Workbooks, Search for data within a workbook, Navigate to a named cell, range, or workbook element, Insert and remove hyperlinks 1.3. Getting Acquainted with Excel: Title Bar, Ribbon Tab, Scroll Bar, Microsoft office button, quick access toolbar, formula bar, status bar, workbook vie button 1.4. Format Worksheets and Workbooks, change worksheet tab color, rename a worksheet, change worksheet order, Insert and delete columns or rows, change workbook themes, adjust row height and column width, Insert headers and footers 1.5. Customize Options and Views for Worksheets and Workbooks, Hide or unhide worksheets, Hide or unhide columns and rows, Customize the Quick Access toolbar, modify document properties, Display formulas. 1.6 Introduction to descriptive statistics and frequency distribution Measures of central tendency of data Measures of dispersions of data 1.6 Graphics and Charts Bar diagram (simple, Multiple and subdivided), Pie-chart, Histogram, line diagram.	**(15)**	**01**
	Practical:- I 1) Data Handling by using MS-Excel 2) Data Handling by using MS-Excel – II 3) Pie Diagram 4) Bar Diagram	**(30)**	**01**

	5) Histogram 6) Measures of Central Tendency-I (Ungrouped data) 7) Measures of Dispersion –I (Ungrouped data) 8) Moments, Skewness and Kurtosis		

	Data Analysis using MS-Excel -II	**No. of hours**	**Credit**
Semester -II	• Creating chart, selecting chart and chart element, moving and resizing chart, changing chart type, switching row and column data, choosing chart layout. • Formatting Chart object, inserting object into chart, changing chart labels, axis display, chart background. • Creating Pivot tables and pivot charts, manipulating pivot tables, applying pivot table style, sorting and filtering pivot table data. • Use of functions: SUM, COUNT, MAX, MIN, AVERAGE, IF, AND and OR function **Association of variables** Correlation and regression Multiple correlation and regression Partial correlation **Probability** Computation of probabilities of an events using i) Binomial ii) Hypergeometric iii) Poisson iv) Geometric v) Negative Binomial distribution	**(15)**	**01**
	Practical:- II 1. Correlation 2. Regression 3. Partial Correlation 4. Multiple Correlation 5. Multiple Regression	**(30)**	**01**

	6. Computational of Probabilities		

Learning Outcomes:

After completing this course, the student should be able to . . .

1. Understand how to plot graphs through excel software
2. Perform operations on Text data
3. Perform complex calculations within short time using MS-Excel
4. Apply Statistical functions to compute statistical measures of the data

Recommended Books:

1. Kumar Bittu, Microsoft Office 2010
2. Frag Curtis , Step by Step Microsoft Excel 2013.
3. John Walkenbach, 101 Excel 2013 Tips , Tricks and Time severs.
4. Salkind Neil J.Statistics for people who (Think They) Hate Statistics, Using MS- Excel .

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Program: B.Sc. I

Subject: Statistics (Vocational Skill Courses (VSC))

Semester: I and II

Pattern: Choice Based Credit System (CBCS)

Syllabus to be implemented from June, 2023

VSC Syllabus (NEP-2020)

Course Objectives: Students will be able to,

1. To provide the knowledge of R software to the students.
2. To understand Statistical functions in R software.
3. To develop hands-on skills of students

	VSC Paper – I **Basics of Statistics Using R -I**	**No. of hours per unit**	**Credit**
Semester - I	**1. Fundamentals of R** Introduction to R, Installation of R Software, Getting help in R, installing packages and libraries, R Commands and case sensitive, Accessing Data from External file (Importing Data), Data Types (models): logical, numerical, complex , vectors and vector arithmetic, R- Function : seq, rep, c(combine), Accessing Vectors, Other types of objects : 1) Matrices or arrays, data.frame. **2.Diagrams** Line diagram, Simple bar diagram, Subdivided bar diagram, multiple bar diagram, Pie diagram, Stem and leaf diagram. **3. Graphs** Boxplot for one and more than one variables, rod or spike plot, histogram for raw data with prob=T option and for both equal and unequal class intervals, frequency polygon, ogive curves, empirical distribution function Saving the diagram and graph in MS-Word file.	**(15)**	**01**
	Practical:- I 1. Fundamentals of R 2. Diagrammatic representation of the frequency distribution I (Line diagram) 3. Diagrammatic representation of the frequency distribution II (Simple Bar diagram) 4. Diagrammatic representation of the frequency distribution III (Multiple Bar diagram) 5. Diagrammatic representation of the frequency distribution IV (Sub divided Bar diagram) 6. Diagrammatic representation of the frequency distribution V (Pie diagram) 7. Diagrammatic representation of the frequency	**(30)**	**01**

	distribution VI (Stem and leaf diagram) 8. Graphical representation of the frequency distribution I (Histogram) 9. Graphical representation of the frequency distribution II (frequency polygon) 10. Graphical representation of the frequency distribution III (frequency Curve) 11. Graphical representation of the frequency distribution IV (Ogive curves)		
Semester - II	**VSC Paper – II** **Basics of Statistics Using R -II**	**No. of hours per unit**	**Credit**
	Measures of central tendency, dispersion, Skewness and kurtosis Computational of following measures for all types of data a) Central tendency mean, mode, median, quartiles, deciles, percentiles, G.M.and H.M. b) Dispersion: variance, standard deviation, coefficient of variation, mean deviation. c) Skewness: Bowley's coefficient and Karl Pearson's coefficient of Skewness. d) Moments: Computational of raw and central moments measures of Skewness and kurtosis based on it.	**(15)**	**01**
	Practical:- II 1. Measures of Central Tendency I (ungrouped data) 2. Measures of Central Tendency II (grouped data) 3. Measures of Dispersion I (ungrouped data) 4. Measures of Dispersion II (grouped data) 5. Moments (ungrouped data). 6. Moments (grouped data). 7. Skewness (ungrouped data). 8. Skewness (grouped data). 9. Kurtosis (ungrouped data). 10. Kurtosis(grouped data).	**(30)**	**01**

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